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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/765,791	01/27/2004	Shuzo Sato	075834.00478	2601

33448 7590 11/27/2007  
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CHICAGO, IL 60606-6306

EXAMINER

LEADER, WILLIAM T

ART UNIT	PAPER NUMBER
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1795

MAIL DATE	DELIVERY MODE
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11/27/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/765,791

Applicant(s)

SATO ET AL.

Examiner

William T. Leader

Art Unit

1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 06 September 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 50,52-55,57-59,61-64,90 and 92-101 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 50,52-55,57-59,61-64,90 and 92-101 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_

### DETAILED ACTION

1. Receipt of the papers filed on September 6, 2007, is acknowledged. Claims 51, 56, 60, 65-89 and 91 have been canceled. New claims 92-101 have been added. Claims 50, 52-55, 67-59, 61-64, 90 and 92-101 are pending.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

### *Claim Rejections - 35 USC § 112*

3. Claims 50, 52-55, 67-59, 61-64, 90 and 92-101 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. As indicated in the previous office action, in a claim directed to apparatus, a limitation based on the workpiece to be treated by the apparatus is indefinite because the workpiece is not a part of the apparatus itself. The apparatus recited by applicant is capable of polishing workpieces of various sizes, and it is not known in advance what sizes of workpieces will be treated during operation of the workpiece. Newly presented independent claim 92 recites that the object to be polished "includes a substrate and a film formed over the substrate" and "a cathode

member relatively small compared with the upper surface of the film." Claim 95 is similar. This language is substantially the same as that recited in claim 50 as originally presented and is considered to be indefinite for the reasons given in the previous office action.

5. Applicant has amended claims 50 and 90 to recite "a portion of the table corresponding to the size of the object to be polished". This language continues to relate the structure of the claimed apparatus to be object to be treated by the apparatus during use of the apparatus. Consequently, the scope of the claims is considered to be indefinite.

***Claim Rejections - 35 USC § 102***

6. Claims 50, 52-55, 67-59, 61-64, 90 and 92-101 are rejected under 35 U.S.C. 102(e) as being anticipated by Wang (U.S. 6,447,668) for the reasons given in the previous office action and in view of the following comments.

7. Applicant has amended independent claims to recite a control means for controlling application of the voltage and speed of the moving means. Figure 47 of Wang illustrates an embodiment configured to be a fully computer-controlled wafer-processing tool (column 49, lines 47-67). Figure 48 depicts the operation of a portion of software for controlling the apparatus. The full computer control means of Wang would have been capable of controlling in the manner recited by applicant.

***Claim Rejections - 35 USC § 103***

8. Claims 50, 52-55, 67-59, 61-64, 90 and 92-101 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang (US 6,447,668) in view of Adams et al (US 6,143,155).

9. Wang is taken as above. The Adams et al patent discloses apparatus for processing semiconductor wafers. Electrodes are moved across the surface of the wafer until the entire wafer has been processed. The processing includes electrochemical plating and planarization. See the abstract and figures 5 and 6. Adams teaches that various parameters of the process including the scanning speed of the electrodes may be adjusted (column 9, lines 28-34). As shown in figure 8, the apparatus includes control computer 610 and scan motor controller 640 (column 11, lines 1-3). Adams discloses that one of ordinary skill in the art can readily further optimize the operation by varying the current and scan speed (column 12, lines 57-60). If Wang is interpreted as including a control means which is not capable of controlling the application of voltage and speed of moving the electrodes, the inclusion of these capabilities in the control means would have been obvious because Adams teaches that these are parameters that are desirably adjusted during electrochemical processing of a wafer, and discloses control means for controlling these parameters.

*Response to Arguments*

10. Applicant's arguments have been carefully considered but are not deemed to be persuasive. At page 11 of the Remarks, applicant states that a critical part of the invention is the use of an electrode that is relatively smaller than the object to be polished or plated. While this may be a critical aspect of the invention, the argument is not convincing. As explained in MPEP 2115, the material or article worked upon does not limit apparatus claims. "Expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim".

11. At page 12 of the Remarks, applicant argues that Wang fails to disclose a cathode smaller than the object to be polished, and fails to disclose a moving means for moving the cathode. Applicant specifically states that cathode jets 254 of Wang are merely electrolytic solution jets that eject an electrolytic solution between the cathode and object structure of Fig 24 (page 12 of the Remarks), and that jets 254 do not comprise any portion of a cathode (page 13). This argument is considered to be incorrect. The previous office action referred to figures 28A, 28B, 32A and 32B at page 4, first paragraph. Two cathode jets 254 are shown in figure 28B. The jet on the left is shown to include element 252. Figures 32B and 32B show more detail of the cathode jets. As explained in the description of figure 32A, element 252 is a cathode. See column 37, line 66 to column 38, line 8. Thus, contrary to applicant's

assertion, cathode jets 254 clearly include a cathode. As illustrated, the cathode is smaller than wafer 31 which is treated. As shown by the arrows adjacent to the letter "X" (for the X axis) in figure 28A, jets 254 are adapted to move across the diameter of the wafer. Guide bar 250 on which the jets sit constitutes means for facilitating the movement of the jets. Thus, the structure recited in applicant's claims is met by the apparatus of Wang. The operation of the apparatus shown in figures 28A and 28B of Wang is described at column 37, lines 17-30. As explained by Wang, one portion of the wafer is treated, and in step 4 the cathode jets 254 are moved to the next position. Steps 1-4 are repeated until the entire metal layer has been electropolished.

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be

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calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William T. Leader whose telephone number is 571-272-1245. The examiner can normally be reached on Mondays-Thursdays and alternate Fridays, 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Susy Tsang-Foster can be reached on 571-272-1293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



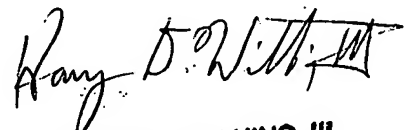
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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

WL

William Leader  
November 21, 2007

  
HARRY D. WILKINS, III  
PRIMARY EXAMINER